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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,175	02/11/2002	Hans-Peter Koch	10191/2245	5019

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EXAMINER	
FONTAINE, MONICA A	

ART UNIT	PAPER NUMBER
1732	

DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/074,175	KOCH ET AL.	
	Examiner	Art Unit	
	Monica A Fontaine	1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on Feb. 11, 2002.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-27 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-27 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 052002.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

Claim 8 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The independent claim requires a mixture of inert gas and oxygen for the initial annealing step, and the dependent claim allows either a mixture of inert gas and oxygen OR one of plain inert gas for the initial annealing step.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rutz et al. (U.S. Patent 5,268,140), in view of Bock et al. (U.S. Patent 5,506,199). Regarding Claim 1, Rutz et al., hereafter "Rutz," show that it is known to carry out a method for manufacturing a

pressed part from a soft magnetic composite material (Abstract), the method comprising providing a starting mixture including an iron powder and an auxiliary pressing agent (Column 6, lines 27-48), pressing the starting mixture to form a pressed part (Column 6, lines 27-48), and annealing the pressed part in air (Column 7, lines 15-36). It is hereby noted that air itself is a mixture of gases, approximately 78 percent nitrogen, 21 percent oxygen, and 1 percent of other gases. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to prevent oxidation in a controlled environment, thereby decreasing the concentration of oxygen in the air. It would also be expected that although applicant claims a percentage of oxygen that is less than normal air, his results could be suggested by carrying out an annealing process in an environment of air wherein the concentration of oxygen is slightly higher than the claimed range. Although Rutz shows annealing in environments including air or an inert gas (nitrogen: Column 8, lines 60-62), Rutz does not explicitly show annealing the pressed part in a gas mixture of inert gas and oxygen. Bock et al., hereafter "Bock '199," show that it is known to carry out a method for manufacturing a pressed part including annealing the pressed part in a gas mixture of inert gas and oxygen (Column 3, lines 3-5; It is noted that the instant specification does not show that the specific claimed concentration yields new and unexpected results. Further, the specification discloses that annealing can take place in air, an inert gas, OR a gas mixture (pages 6-7), and therefore the specific novelty of the claimed concentration is not apparent and is assumed to be an obvious experimental design choice of one of ordinary skill in the art.). Bock '199 and Rutz are combinable because they are concerned with a similar technical field, namely, that of compression molding processes which include an annealing step. It would have been prima facie obvious to one of ordinary skill in the art at the

time the invention was made to carry out Rutz's annealing step in Bock '199's inert-gas-and-oxygen-mixture environment in order to capitalize on desirable chemical and physical changes which occur in this type of environment.

Regarding Claim 2, Rutz shows the process as claimed as discussed in the rejection of Claim 1 above, but he does not show annealing the pressed part in a gas mixture of inert gas and oxygen. Bock '199 shows that it is known to carry out a method for manufacturing a pressed part including annealing the pressed part in a gas mixture of nitrogen and oxygen (air: Column 2, lines 50-52; Column 3, lines 3-5). It is hereby noted that air itself is a mixture of gases, approximately 78 percent nitrogen, 21 percent oxygen, and 1 percent of other gases. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to prevent oxidation in a controlled environment, thereby decreasing the concentration of oxygen in the air. It would also be expected that although applicant claims a percentage of oxygen that is less than normal air, his results could be suggested by carrying out an annealing process in an environment of air wherein the concentration of oxygen is slightly higher than the claimed range. It is also noted that the instant specification does not show that the specific claimed concentration yields new and unexpected results. Further, the specification discloses that annealing can take place in air, an inert gas, OR a gas mixture (pages 6-7), and therefore the specific novelty of the claimed concentration is not apparent and is assumed to be an obvious experimental design choice of one of ordinary skill in the art. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to carry out Rutz's annealing step in Bock '199's inert-gas-and-oxygen-mixture environment in order to capitalize on desirable chemical and physical changes which occur in this type of environment.

Regarding Claim 3, Rutz shows the process as claimed as discussed in the rejection of Claim 1 above, including a method wherein the annealing is performed at temperatures between 380°C and 450°C over a time period of 10 to 120 minutes (Column 7, lines 25-27, 32-33), meeting applicant's claim.

Regarding Claim 4, Rutz shows the process as claimed as discussed in the rejection of Claims 1 and 3 above, including a method wherein the annealing is performed at a temperature of 425°C over a time period of 30 to 60 minutes (Column 7, lines 25-27, 32-33), meeting applicant's claim.

Regarding Claim 5, Rutz shows the process as claimed as discussed in the rejection of Claim 1 above, including a method wherein the pressing is performed at room temperature at an a pressure of between 600MPa and 900MPa (Column 6, lines 42-44), meeting applicant's claim.

Regarding Claim 6, Rutz shows the process as claimed as discussed in the rejection of Claims 1 and 5 above, including a method wherein the pressing is performed at a pressure between 700MPa and 800MPa (Column 6, lines 42-44), meeting applicant's claim.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rutz and Bock '199, as applied to claim 1 above, further in view of Bayer (U.S. Patent 6,383,281). Rutz shows the process as claimed as discussed in the rejection of Claim 1 above, including using phosphatized pure iron powder (Column 4, lines 4-8), but he does not specifically show an auxiliary agent of wax. Bayer shows that it is known to carry out a method for manufacturing a pressed part wherein iron powder is combined with a polymeric wax as an auxiliary pressing agent (Column 2, lines 23-26). Bayer and Rutz are combinable because they are concerned with

a similar technical field, namely, that of manufacturing methods which yield heat-treated metal composite articles. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Bayer's auxiliary agent in Rutz's and Bock '199's molding method in order to obtain a product which has desired chemical and physical properties.

Claims 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rutz and Bock '199, as applied to claim 1 above, further in view of Bock et al. (U.S. Patent 5,047,391).

Regarding Claim 8, Rutz shows the process as claimed as discussed in the rejection of Claim 1 above, including initially annealing the pressed parts at a temperature of 150°C to 400°C in air, but he does not show a postforming process. Bock et al., hereafter "Bock '391," show that it is known to carry out a method of manufacturing a pressed part comprising initially annealing the pressed parts, and postforming the pressed parts (Column 3, lines 24-26). Bock '391 and Rutz are combinable because they are concerned with a similar technical field, namely, that of manufacturing methods which yield heat-treated metal composite articles. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Bock '391's postforming process in conjunction with Rutz's and Bock '199's molding method in order to refine the shape of the annealed article.

Regarding Claim 9, Rutz shows the process as claimed as discussed in the rejection of Claims 1 and 8 above, including a method wherein the pressed parts are initially annealed at a temperature of 230°C to 310°C (Column 7, lines 25-27), meeting applicant's claim.

Regarding Claim 10, Rutz shows the process as claimed as discussed in the rejection of Claims 1 and 8 above, including a method wherein mechanical shaping takes place as a

compression process at a pressure between 600MPa and 900MPa (Column 6, lines 42-44). Rutz does not show carrying out this mechanical shaping prior after one annealing process. Bock '391 shows that it is known to carry out mechanical shaping processes after one annealing process and before another annealing process (Column 2, lines 15-24, 52-65). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to carry out Rutz's and Bock '199's pressing process after the annealing process, as suggested by Bock '391, in order to refine the shape of the annealed article.

Regarding Claim 11, Rutz shows the process as claimed as discussed in the rejection of Claims 1, 8, and 10 above, including a method wherein mechanical shaping takes place as a compression process at a pressure of between 700 MPa and 800MPa (Column 6, lines 42-44), meeting applicant's claim.

Regarding Claim 12, Rutz shows the process as claimed as discussed in the rejection of Claim 1 above, but he does not show mechanically shaping sections of the surface of the pressed part. Bock '391 show that it is known to carry out a method of manufacturing a pressed part comprising after annealing the pressed part in a gas mixture of inert gas and oxygen, mechanically shaping at least sections of a surface of the pressed parts (Column 3, lines 24-26). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to mechanically shape Rutz's and Bock '199's article after annealing, as in Bock '391, in order to refine the shape of the annealed article.

Regarding Claim 13, Rutz shows the process as claimed as discussed in the rejection of Claims 1 and 12 above, but he does not show grinding his annealed product. Bock '391 show that it is known to carry out a grinding process after annealing an article (Column 3, lines 24-26).

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to carry out a grinding process, as in Bock '391, after the annealing step of Rutz and Bock '199 in order to refine the shape of the annealed article.

Claims 14-24, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rutz, in view of Bock '391. Regarding Claim 14, Rutz shows that it is known to carry out a method for manufacturing a pressed part (Abstract), the method comprising providing a starting mixture including an iron powder and an auxiliary pressing agent (Column 6, lines 27-48), pressing the starting mixture to form a pressed part (Column 6, lines 27-48), and annealing the pressed part (Column 7, lines 15-36). Rutz does not show a postforming procedure. Bock '391 shows that it is known to carry out a method of manufacturing a pressed part comprising postforming an annealed part and re-annealing the pressed part (Column 3, lines 24-26). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to carry out Bock '391's postforming process and re-annealing process during Rutz's molding procedure in order to refine and secure the annealed article.

Regarding Claim 15, Rutz shows the process as claimed as discussed in the rejection of Claim 14 above, including a method wherein mechanical shaping takes place as a compression process at a pressure between 600MPa and 900MPa (Column 6, lines 42-44). Rutz does not show carrying out this mechanical shaping ~~prior~~ after one annealing process. Bock '391 shows that it is known to carry out mechanical shaping processes after one annealing process and before another annealing process (Column 2, lines 15-24, 52-65). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to carry out Rutz's

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and Bock '199's pressing process after the annealing process, as suggested by Bock '391, in order to refine the shape of the annealed article.

Regarding Claim 16, Rutz shows the process as claimed as discussed in the rejection of Claims 14 and 15 above, including a method wherein mechanical shaping takes place as a compression process at a pressure of between 700 MPa and 800MPa (Column 6, lines 42-44), meeting applicant's claim.

Regarding Claim 17, Rutz shows the process as claimed as discussed in the rejection of Claim 14 above, including a method wherein the annealing is performed at temperatures between 380°C and 450°C over a time period of 10 to 120 minutes (Column 7, lines 25-27, 32-33), meeting applicant's claim.

Regarding Claim 18, Rutz shows the process as claimed as discussed in the rejection of Claims 14 and 17 above, including a method wherein the annealing is performed at a temperature of 425°C over a time period of 30 to 60 minutes (Column 7, lines 25-27, 32-33), meeting applicant's claim.

Regarding Claim 19, Rutz shows the process as claimed as discussed in the rejection of Claim 12 above, including a method wherein the annealing is performed at temperatures between 150°C and 400°C over a time period of 10 to 120 minutes (Column 7, lines 25-27, 32-33), meeting applicant's claim.

Regarding Claim 20, Rutz shows the process as claimed as discussed in the rejection of Claims 14 and 19 above, including a method wherein the annealing is performed at a temperature between 230°C and 310°C over a time period of 30 to 60 minutes (Column 7, lines 25-27, 32-33), meeting applicant's claim.

Regarding Claim 21, Rutz shows the process as claimed as discussed in the rejection of Claim 14 above, including a method wherein the pressing is performed at room temperature at an a pressure of between 600MPa and 900MPa (Column 6, lines 42-44), meeting applicant's claim.

Regarding Claim 22, Rutz shows the process as claimed as discussed in the rejection of Claims 14 and 21 above, including a method wherein the pressing is performed at a pressure between 700MPa and 800MPa (Column 6, lines 42-44), meeting applicant's claim.

Regarding Claim 23, Rutz shows the process as claimed as discussed in the rejection of Claim 14 above, but he does not show a re-annealing process in air. Bock '391 shows that it is known to carry out an annealing and re-annealing process in air (Column 2, lines 52-65). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to anneal and re-anneal in air, as suggested by Bock '391, during Rutz's molding process in order to capitalize on desirable chemical and physical changes which occur in this type of environment.

Regarding Claim 24, Rutz shows the process as claimed as discussed in the rejection of Claim 14 above, but he does not show a re-annealing process in a gas mixture of an inert gas and oxygen. Bock '391 shows that it is known to carry out an annealing and re-annealing process in air (Column 2, lines 52-65). It is hereby noted that air itself is a mixture of gases, approximately 78 percent nitrogen, 21 percent oxygen, and 1 percent of other gases. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to prevent oxidation in a controlled environment, thereby decreasing the concentration of oxygen in the air. It would also be expected that although applicant claims a percentage of oxygen that is less than normal air, his results could be suggested by carrying out an annealing process in an environment

of air wherein the concentration of oxygen is slightly higher than the claimed range. It is also noted that the instant specification does not show that the specific claimed concentration yields new and unexpected results. Further, the specification discloses that annealing can take place in air, an inert gas, OR a gas mixture (pages 6-7), and therefore the specific novelty of the claimed concentration is not apparent and is assumed to be an obvious experimental design choice of one of ordinary skill in the art. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to carry out Rutz's annealing step in Bock '391's inert-gas-and-oxygen-mixture environment, i.e. air, in order to capitalize on desirable chemical and physical changes which occur in this type of environment.

Regarding Claim 26, Rutz shows the process as claimed as discussed in the rejection of Claim 14 above, but he does not show a mechanical shaping process after re-annealing. Bock '391 shows that it is know to carry out a method of manufacturing a pressed part comprising mechanically processing at least sections of a surface of the pressed parts after re-annealing (Column 3, lines 24-26). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to carry out Bock '391's re-annealing and mechanical shaping process during Rutz's molding procedure in order to refine and secure the annealed article.

Regarding Claim 27, Rutz shows the process as claimed as discussed in the rejection of Claims 14 and 26 above, but he does not show grinding after re-annealing. Bock '391 shows that it is know to carry out a method of manufacturing a pressed part comprising grinding after re-annealing (Column 3, lines 24-26). It would have been prima facie obvious to one of ordinary

skill in the art at the time the invention was made to carry out Bock '391's re-annealing and grinding process during Rutz's molding procedure in order to refine the annealed article.

Claim 25 rejected under 35 U.S.C. 103(a) as being unpatentable over Rutz and Bock '391, as applied to claim 14 above, further in view of Bayer. Rutz shows the process as claimed as discussed in the rejection of Claim 1 above, including using phosphatized pure iron powder (Column 4, lines 4-8), but he does not specifically show an auxiliary agent of wax. Bayer shows that it is known to carry out a method for manufacturing a pressed part wherein iron powder is combined with a polymeric wax as an auxiliary pressing agent (Column 2, lines 23-26). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Bayer's auxiliary agent in Rutz's and Bock '391's molding method in order to obtain a product which has desired chemical and physical properties.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of the art with regard to forming processes, including annealing, of metal composites:

U.S. Patent 5,754,936 to Jansson

U.S. Patent 6,001,272 to Ikuma et al.

U.S. Patent 6,174,453 to Harada

U.S. Patent 6,537,389 to Aichele et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica A Fontaine whose telephone number is 571-272-1198. The examiner can normally be reached on Monday-Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Colaianni can be reached on 571-272-1196. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Maf
March 10, 2004

MICHAEL COLAIANNI
PRIMARY EXAMINER